Nominal wage rigidity in the European Countries: evidence from the Europanel.*

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Abstract

This paper analyses wage dynamics at individual level using the ECHP data. We compare yearly wage changes of employees in twelve European countries during the 1994-96 time-period. In all the European countries we find evidence of nominal and not real wage rigidity. At the same time, in none of the countries considered wages are completely downwardly rigid. We also compare nominal wage changes of employees staying with the same employer to movers and find that, despite movers distributions are generally more flexible than stayers, surprisingly enough they also have a spike at zero. Explanations of the above results with institutional features of the countries considered are given.

Keywords: wage rigidity, hold-up, risk-sharing, stayers, movers.
JEL Codes: J31 e J41

*Preliminary and incomplete

1 Introduction

The interest in analyzing individual panel data in order to assess whether wages are rigid or flexible dates back to McLaughlin (1994)'s paper. From that date on, a number of analyses have been carried out both for the US and some European Countries. There is no agreement among researchers about the extent of downward wage rigidity even for the US, where most of the analyses have been carried out using the same data-set, the Panel Survey of Income Dynamics (PSID). Intercountry comparisons are difficult because surveys are carried out in different ways, and therefore the information available both for defining the subsample and the variable of interest may differ across countries. In this paper we overcome this problem, at least for comparisons across 12 European countries (UK, Italy, France, Germany, Denmark, Netherlands, Belgium, Luxemburg, Ireland, Greece, Spain and Portugal), by using the first 3 waves of the recent European Community Household Panel (ECHP), for the period 1994-1996. The relevant feature of this data-set is that the same questionnaire is asked across the countries involved in the survey. This obviously enormously simplifies intercountry-comparisons.

The analysis of wage changes distributions is particularly interesting for different reasons. First of all, it allows us to test if wages are downwardly rigid, and therefore to determine the extent of wage rigidity. At the same time, looking at wage dynamics we can easily check if we observe nominal or real wage rigidity at individual level. Apart from helping us to understand the nature of unemployment (Keynesian if *nominal* wages are predetermined or classical if *real* wages are fixed), and therefore the appropriate measures to be adopted to try to reduce it, assessing whether wages are rigid in nominal or in real terms is an easy way of testing the implications of microeconomic theories that explain how wage dynamics are determined. In the literature some theories (menu costs, staggered contracts, theories where there is imperfect information on wages, Keynes's relative wage theory) predict nominal wage rigidity, others (implicit contracts, efficiency wage, insider-outsider theories) imply real wage rigidity, whereas others (McLeod and Malcomson's hold-up models) can at least in theory give rise to both[1]. Therefore, evidence on percentage wage changes at individual level are crucial in order to understand which of the above theories gives plausible explanations for the stylised facts observed in the data.

[1]They show that, if indexing wages is costly, their model implies nominal wage rigidity

The existing evidence on wage changes seems to support the idea that wages are rigid in nominal, and not in real terms. At the same time, wage cuts do not seem to be rare. Using data from the PSID, McLaughlin (1994) finds that on average over 1976-86 there were 17% stayers experiencing wage cuts and 7% had zero nominal pay growth. He uses two measures for wages: *earnings* and *hourly earnings* concluding that wages in the US are quite flexible. Instead of pooling together periods of high and low inflation, subsequent studies have focused on yearly wage changes, finding evidence of a spike at zero for nominal wage changes distributions. This spike is taken as evidence of nominal wage rigidity. But, although being quite asymmetric around zero, wage changes distributions are not completely downwardly rigid. Kahn (1997) distinguishes between 10.6% wage cuts for *wage* earners and 24.3% cuts for *salary* earners, finding also a strong evidence of 8% nominal wage rigidity during 1971-88. Also, according to Card and Hyslop (1997), despite many individuals in the PSID report wage cuts, there is clear evidence of nominal wage rigidity. In particular, they find that the spike at zero *hourly* wage changes spans from 7% in a 10% inflation environment to 15% when inflation fell to 5%, both for salary and wage earners. Therefore, the spike at zero nominal wage changes is highly sensitive to the rate of inflation.

Data at firm level (Altonji and Devereux (1999)'s personnel file of a large firm, Bewley (1998)'s interview study that involves 300 business people) show much higher levels of wage rigidity, measured as *hourly* wage, and basically no wage cuts. Using different methodologies, McLaughlin (1994), and Card and Hyslop (1997) argue that measurement errors can not explain all the percentages of wage cuts observed in individual survey's data, whereas by estimating an econometric model Altonji and Devereux (1999) explain all the wage cuts observed in the PSID with measurement error. Therefore, in the PSID, measurement errors apparently reduce the observed percentage of nominal wage rigidity and increase the percentage of wage cuts.

Similar analyses carried out in some European countries seem to give different results. Goux (1997) compares two different sources of data available for France: the 1976-92 Dèclarations Annuelles de Donnèe Sociales (DADS), an administrative, potentially error-free data-set, and the 1990-96 French Labour Force Survey (LFS). Using *annual earnings* as a measure of wages, and therefore not controlling for the number of hours, she finds that the amount of wage cuts is similar in the two data-sets and affects approximately

25% of stayers employed full-time[2].

Smith (1999) and Nickell and Quintini (2001) examine the UK using different data sources. Smith (2000) analyses the British Household Panel Survey (BHPS). She uses *weekly earnings* as a measure for wages and stayers who do not change the number of hours worked as the sample of interest. She finds that the percentage of employees whose wage is constant from one year to the next is 9% during 1991-6 and the percentage of wage cuts is on average 23%. Using the unique feature of the BHPS, that allows to consider the subsample of people whose payslip has been checked by the interviewer, Smith (1999) focuses on the employees whose reported earnings are error-free, and who do not receive bonuses or overtime pay, finding that only 1% of them had zero pay growth and 18% received wage cuts. Therefore, contrary to what has been found for the US, measurement errors seem to be able to explain only the extent of wage rigidity, increasing the percentage of nominal wage rigidity observed in survey data. As a consequence wages appear much more flexible in the UK than in the US. Using the UK New Earnings Survey (NES) from 1997 to 1999, Nickell and Quintini (2001) find on average lower percentages of both no change in wage and wage cuts than Smith (2000) for the same 1991-96 period, but they use a different measure of wage. In the NES data are provided by employers and come directly from payroll records, which ensures a high degree of accuracy. The measure of the nominal *hourly wage* rate used is the weekly pay of those whose pay is unaffected by absence, excluding overtime pay, divided by weekly hours excluding overtime hours. Again, only full-time employees are considered.

Fehr and Goette (1999) analyse *earnings per working hour* of stayers in the Swiss LFS during the period of very low inflation 1991-96. They find 12% of rigid wages and 25% of wage cuts. Allowing for measurement errors they estimate an econometric model obtaining results similar to those found for the US: measurement errors can explain most of the observed wag cuts, that actually turn in no wage changes.

As we can see, comparisons are not easy in this kind of analyses, as the results highly depend on the quality of data used, the period considered, the measure chosen for wages, and the methodology used in considering measurement errors. In this paper we spoil the advantages of the ECHP data-set

[2]Interestingly, a good percentage of wage cuts can be explained with one of the following: 1) better working conditions, 2) decrease in annual bonus, and 3) 4-digit change in occupation.

that allows us to give the same definition for stayers and movers and to use the same measure of wage across the European countries that joined the panel. Our purpose is to extend evidence on the extent of wage rigidity to the European countries using a panel data from individual surveys which, for its characteristics, can be easily compared to the PSID for the US and the BHPS for the UK. At the same time, whereas in all previous studies only non job changers were considered, we compare stayers and movers. In fact, all the theories of nominal and real wage rigidity predict flexible wages for movers.

We find evidence of nominal, and not real wage rigidity in all the countries considered. But the extent of this rigidity is different across countries: it goes from 42% in Germany to 2.03% in Ireland. At the same time, wage cuts are common in the European countries. The percentages vary from 11.29% in Portugal to 23.34% in Denmark. The striking result that we also find is that movers wages appear to be quite rigid. This result rises concerns either about the impact of measurement and rounding errors in survey-data or on the predictive capabilities of the existing theories of wage determination.

The structure of the paper is the following: in Section 2 we describe the ECHP data and the information available about employees and wages. Section 3 contains the results of our analysis. In Section 4 we explain our results using the implications of theories of wage determination. Section 5 summaries our conclusions.

2 Data

The European Community Household Panel (ECHP) is a recent large-scale longitudinal study set up and funded by the European Union. The great advantage of the ECHP is that it is a survey in which it is possible to find information not only at household but also at individual level. Moreover, the same questionnaire is asked to a sample of about 60,000 nationally representative households - i.e. approximately 129,000 adults aged 16 years and over - in 12 European countries (UK, Italy, France, Germany, Denmark, Netherlands, Belgium, Luxemburg, Ireland, Greece, Spain and Portugal). This procedure allows us to compare directly data from different countries, reducing the problems of harmonizing different countries information. Up to now, only three waves are available, from 1994 to 1996. In 1995 Austria joined the project and in 1996 Finland too, therefore the number of Member

States raised to 14.

The user-friendly, anonymised version of the ECHP, sold by Eurostat, is called User Data Base (UDB). In the UDB data have been anonymised and checked as thoroughly as possible, and some imputations have been carried out. This version of the data-set turns out to be very 'clean', but it contains less information than the original data, the so-called Production Data Base (PDB).In this section, first we discuss how we constructed our sub-sample. Then, in Section 2, we motivate our choice of the measure of wage.

2.1 Stayers and movers

As we said in the introduction, the purpose of our analysis is to study the impact of renegotiating an existing contract on wage dynamics. For this reason we concentrate on employees. Self-employed are excluded from our analysis as their earnings are not regulated by a contract. Employees are detected in the ECHP as people reporting wages. The crucial distinction is the one between *stayers,* i.e. employees who do not change employer[3] and *movers,* i.e. employees who change employer, and so write a new employment contract[4]Unfortunately we can not distinguish employees paid by the hour from those paid weekly. But we have quite detailed information about the type of the employment contract. In particular, we know whether the employee is working part-time or full-time[5]. In Tab. 1 we give the composition of stayers by contract characteristics. As we can see, full-time workers are the majority in our sample. For this reason, our results do not change if we consider the sub-sample of *stayers full-time.* In Appendix 2 we give the tables for all the sample of *stayers,* and we compare part-time and full-time workers. In the next Section we focus on *stayers full-time.*

[3]This can be easily done in the ECHP by constructing a 'job tenure' variable from the information available about the year and month of start of the current job. We classify as *stayers* all the employees who do not change the date of start of the current job, obviously with the respect to the date of the interview.

[4]In the ECHP we know the reason why movers moved, in particular we can distinguish those who were fired from those who changed their job voluntarily.

[5]From 1995 on, we also know the type of contract (permanent, fixed-term or short-term, casual with no contract, other working arrangements) and, for temporary contracts, the length of the contract.

2.2 Measures of wage

Although in the original questionnaire both net and gross wages were asked, in the UDB we find only information about net wages[6]. The only exception is France where, because of the tax system, wage data have been collected as gross.

In the ECHP hourly wages are not reported, but two measures of net nominal earnings are available: 1) "current net wage and salary earnings" (i.e. earnings received in the month of the interview); and 2) "total net wage and salary earnings" (referred to the year before the interview). We decided to take the first one as the most reliable measure of wages as the number of months which the second is referred to is not reported.

Since the number of "weekly hours worked in the main job" (always in the month in which the interview was taken) are known, it is also possible to calculate "hourly current earnings". The problem with this measure of wages is that it adds up errors in reporting hours to the already existing errors in reporting wages. Apparently, errors in hours are likely to be greater than errors in pay[7], therefore hourly wages, if not reported but calculated dividing by the number of hours, can be a misleading measure of wage changes over time. Moreover, since we are using earnings as a measure for wages, dividing total earnings for the total number of hours is not appropriate, since usually hourly base pay are different from overtime and bonus pay. In Appendix 1 we investigate the impact of the measure chosen for wages on our results.

One way of getting closer to a measure of the increase in basic wages, adopted also in Smith (2000), is to study pay growth when there are no hours changes[8]. In section 3, when presenting our results, we consider the impact of a change in hours.

[6] Gross wages can be calculated using a net/gross ratio, estimated using a simple statistical orcedure on the basis of reported ratios for income from current and previous year's employment, for both of which net as well as gross amounts are solicited. Althogh "the estimated net/gross ratios are a rather simplistic solution to a complex problem,...the procedure appears robust in so far as the estimated conversion factors are found to have a rather small variance *within countries*". (Eurostat, *ECHP UDB manual*).

[7] For the similar PSID, Duncan and Hill (1985) and Bound *et al.* (1989) concluded that large errors were introduced by dividing reported earnings by reported hours worked.

[8] Clearly in this case both total and hourly earnings changes coincide

Tab. 1 Composition of stayers by contract characteristics

	1994-95					1995-96				
Countries	Total	FF	PP	FP	PF	Total	FF	PP	FP	PF
UK	1873	85.74	12.25	0.93	1.09	1927	86.61	11.57	0.93	0.88
Bel	1758	88.45	8.19	1.37	1.99	1758	89.53	8.64	1.03	0.80
Den	1701	91.12	6.94	0.82	1.12	1700	91.35	6.71	0.76	1.18
Fra	3819	89.11	5.76	1.31	3.82	3729	92.81	5.07	1.05	1.07
Germ	2973	88.36	9.12	1.11	1.41	2907	88.75	9.22	0.86	1.17
Gre	1570	89.55	1.46	0.76	8.22	1575	96.13	0.76	1.71	1.40
Ire	1501	88.27	5.53	1.00	5.20	1489	92.21	5.10	1.68	1.01
Ita	3603	88.09	2.64	0.44	8.83	3605	92.34	2.27	4.49	0.89
Lux	635	90.81	7.66	0.46	1.07	666	91.44	7.06	0.75	0.75
Neth	2646	83.30	13.87	1.17	1.66	2664	83.26	14.23	1.28	1.24
Port	2603	95.74	2.38	0.77	1.11	2576	96.51	2.41	0.35	0.74
Spa	2419	95.12	2.60	0.79	1.49	2448	96.00	2.33	0.74	0.94
Aust	-	-	-	-	-	2143	90.01	6.81	1.77	1.40

FF=Full-time in both waves; PP=Part-time in both waves; FP=change contract from full-time to part-time;PF=change contract from part-time to full-time

3 Results: a descriptive analysis

For each of the European countries considered we calculate the distributions of one-year nominal wage changes. We approximate the percentage wage change by taking the differences in logs for each individual as follows:

$$\log w_{t+1} - \log w_t$$

We define *nominal wage rigidity* as the percentage of observations such that:

$$\log w_{t+1} - \log w_t = 0$$

Taking the differences in logs allows us to compare nominal with real wage rigidity very easily. In fact, we can define *real wage rigidity* as the percentage of observations such that:

$$\log\left(\frac{w_{t+1}}{p_{t+1}}\right) - \log\left(\frac{w_t}{p_t}\right) = 0$$

i.e.:

$$\log w_{t+1} - \log p_{t+1} - \log w_t + \log p_t = 0$$
$$\log w_{t+1} - \log w_t = \log p_{t+1} - \log p_t$$

Therefore we can see the extent of real wage rigidity at the rate of inflation (calculated as the difference in logs of price levels in two consecutive years) of the distribution of nominal wage changes.

In Fig.1a-2b we plot the histograms of the differences in logs of nominal current wages for *stayers* and *movers*. A vertical line has been inserted at the annual rate of inflation[9]. The frequency of the histograms at zero gives us the extent of nominal wage rigidity whereas the frequency at the rate of inflation tells us the extent of real wage rigidity. In Fig 1a and 2a we analyze *stayers,* whereas Fig.1b and 2b are referred to *movers*. We give the results for both the time-periods considered: 1994-95 in Fig. 1a and 1b, and 1995-96 in Fig. 2a and 2b. For scale reasons, and in order to be able to see the centre of the distribution clearly, a roughly equal fraction of workers of 5% at either end of the distribution have been excluded[10].

The histograms show that in all the European countries nominal wage changes have a prominent spike at zero both for stayers and movers, but (a part for France, Spain and Ireland) the fraction of employees in the bar containing zero wage changes is always lower for movers than for stayers. We also observe a sharp drop for little wage changes in stayers' as well as in movers' distributions, with higher positive changes of wages more likely to occur. Moreover, despite movers distributions look much more variable than stayers', there is clear evidence of some downward nominal wage rigidity for both the categories of workers under examination as the distributions are clearly asymmetric. At the same time, wages are not completely downwardly rigid across the European countries: the percentages of wage cuts reported are quite high. In none of the countries we observe a spike at the rate of inflation: real wage cuts are much more frequent than nominal wage cuts.

The percentage of employees with no nominal wage change varies across countries, and graphs in each figure are presented in decreasing-spike order. But it is important to notice that the bar showing the spike is constructed around zero, therefore includes small positive and negative wage changes.

[9]The annual rate of inflation is calculated as the difference in logs of the CPI, taken from Eurostat's publications.

[10]This has no qualitative consequences on our results.

We discuss inter-countries differences referring to figures from Table 2, which gives: in the first columns the number of *stayers* and *movers* in the sample for each country, then the percentage of *stayers* and *movers* with exactly zero nominal current net wage change, followed by the fraction of the same categories of workers reporting wage cuts. We can see that for almost all the countries the percentage of *stayers* with rigid wages is always higher than the percentage of *movers*. A part from Luxembourg, for which we do not have many observations, the countries with the highest percentages of no wage changes are Germany and Belgium, followed by Italy. Portugal and Denmark have a slightly smaller percentage of wage rigidity, followed by the UK, Netherlands, Greece and France (but for France we have gross wages). The countries with the most flexible wages are Spain and Ireland. We can see that the results are not different in the two time-periods considered, a part for the UK, Germany and Portugal, whose percentage of wage rigidity decreases considerably in the second time-period.

In Table 2 we give also the unemployment rates in the two years of interest for each country. We can notice that not always we have more rigid wages in countries with higher unemployment. For example in Luxembourg, where unemployment rates are very low, the percentage of people with rigid nominal wages is very high; while in Spain, where unemployment rates are very high, wages seem to be more flexible. Also, always from Tab. 2, the rates of inflation are quite stable and low during the time-period considered, across the European countries[11].

Table 3 summarises the same numbers calculated in Tab 2, but only for employees who do not change the number of working hours. As we can see, the number of observations becomes much lower and, although the ranking of our countries does not change with respect to Tab. 2, the extent of nominal wage rigidity slightly increases whereas the percentage of wage cuts decreases all over the countries. In general, a change in hours does not seem to have a strong impact on our preferred measure of wages[12].

[11] Changes in the growth rate can explain changes of my results from the first to the secontime-period considered.

[12] See Appendix 1 for discussion of current hourly earnings dynamics.

Tab.2 CURRENT Nominal Wage changes of Stayers working full-time and Movers.

1994-1995									
Countries	St. FT	Mov.	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts	Infl.	Unem. 94	Unem. 95
Ger	2627	166	42.98	37.35	17.40	26.51	0.0185	8.4	8.3
Bel	1555	78	36.66	29.49	16.14	17.95	0.0144	10.0	9.9
Lux	593	35	32.38	31.43	15.18	2.86	0.0193	3.2	2.9
Ita	3174	156	28.83	14.10	21.87	33.33	0.0505	11.4	11.8
Port	2492	129	19.30	13.18	12.76	18.60	0.0406	7.0	7.2
Den	1550	196	18.45	13.78	25.61	27.55	0.0204	8.2	6.8
UK	1575	185	15.05	8.11	21.84	25.95	0.0335	9.6	8.8
Neth	2204	200	14.02	8.50	19.65	28.50	0.0193	7.2	7.3
Gre	1406	96	12.73	9.38	14.01	23.96	0.0888	8.9	9.1
Fra	3403	144	10.40	10.42	33.47	34.72	0.0162	12.3	11.5
Sp	2301	201	4.00	11.44	19.82	32.34	0.0459	24.1	22.9
Ire	1325	152	2.42	2.63	23.32	23.03	0.0258	14.7	14.4

1995-1996								
Countries	St.	Mov.	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts	Infl.	Unem 96
Bel	1565	71	30.73	26.76	21.02	25.35	.0197	9.7
Ita	3329	133	26.64	21.80	18.38	29.32	.0378	11.7
Ger	2580	182	26.28	17.03	25.93	28.02	.0142	8.9
Lux	609	26	21.84	11.54	19.54	26.92	.0134	3
Aust	1929	180	21.88	16.11	49.30	38.33	.0182	4.3
Den	1553	191	21.96	9.95	24.40	31.94	.0207	6.8
Neth	2218	151	16.82	11.92	22.14	31.79	.0206	6.3
Port	2486	141	12.43	10.64	9.94	29.08	.0306	7.3
Gre	1514	73	11.36	8.22	26.88	39.73	.0815	9.6
Fra	3461	110	9.39	6.36	32.42	40.91	.0205	12.4
UK	1669	208	5.39	5.29	21.63	31.73	.0238	8.2
Sp	2350	173	4.43	7.51	31.70	31.21	.0351	22.2
Ire	1373	143	2.40	2.10	28.84	26.57	.0163	11.7

Tab. 3 CURRENT Nominal Wages of Stayers working full-time and Movers who do not change the number of hours worked.

1994-1995						
Countries	St. FT	Mov.	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts
Ger	1053	40	42.36	47.50	16.14	20.00
Bel	674	19	37.09	31.58	16.62	21.05
Ita	1943	68	30.42	13.24	19.56	19.12
Lux	450	19	28.89	26.32	15.33	5.26
Port	1400	47	18.93	6.38	11.29	17.02
Den	981	74	17.64	13.51	23.34	28.38
UK	594	30	15.49	10.00	22.90	33.33
Gre	602	32	14.62	12.50	15.28	28.13
Neth	1275	71	13.96	8.45	18.27	29.58
Fra	1813	36	10.42	5.56	32.27	33.33
Spa	1086	72	4.60	9.72	19.24	31.94
Ire	541	37	2.03	2.70	22.55	13.51

1995-1996						
Countries	St. FT	Mov.	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts
Bel	668	12	31.14	16.67	20.51	25.00
Ger	1197	43	28.57	23.26	22.72	23.26
Ita	2017	51	27.96	27.45	16.16	21.57
Den	1093	87	23.06	10.34	22.96	36.78
Aust	933	55	21.97	9.09	49.30	36.36
Lux	501	12	19.96	-	19.96	41.67
Neth	1301	58	17.29	13.79	21.75	25.8
Port	1554	47	12.48	12.77	8.24	29.79
Gre	800	26	11.75	3.85	25.00	30.77
Fra	1944	28	10.03	7.14	33.44	25.00
Spa	1105	62	4.89	6.45	29.77	35.48
UK	676	31	4.59	-	18.34	19.35
Ire	639	36	1.88	-	27.54	30.56

Comparisons with previous works

In general, we can say that wage dynamics from the ECHP have the same features of the distributions constructed from similar panel data in the US. On average the percentages of rigid wages and wage cuts in Europe are not far away from those observed in the US for similar rates of inflation, but there are enormous differences across countries.

The numbers for the UK in the ECHP are different from Smith (2000)'s results from the BHPS. For the same periods 1994-95 and 1995-96, Smith (2000) finds respectively 9.4% and 7.8% wages unchanged and 22.5% and 23.4% wage cuts. For the same time-period, Nickell and Quintini (2001) find respectively 5.48% and 1.32% rigid wages and 19.47% and 18.20% nominal hourly wage cuts. Wage dynamics for the UK from the ECHP are quite strange: in Tab. 3 we observe a sharp drop both in the percentage of rigid wage (from 15.49% to 4.59%) and in the frequency of wage cuts (from 22.90% to 18.34%). Although we have to bear in mind that in the ECHP we observe net wages whereas Smith (2000) analyses gross wages dynamics, we are not aware of any particular institutional change in the UK in that period which can explain such a strange result[13]. At the same time, if we look in Appendix 1, Tab.4, where the same numbers are given for current hourly earnings dynamics, we notice that the percentages for rigid wages, 5.10% and 1.86% are very close to the ones found by Nickell and Quintini (2001). The fact that our wage cuts are higher, 33.02% and 27.80%, can be a consequence of the fact that we can not eliminate the part of earnings related to overtime hours and bonuses.

Comparisons with Goux (1997) for France can be done from Tab.2, where we do not control for the number of hours. She considers gross earnings for full-time workers in the LFS for the same period finding respectively, in 1994-95 and 1995-96, 11.5% and 12% full-time workers whose earnings did not change and 27% and 28% wage cuts. Our results for France give slightly higher percentages of wage cuts (+3%) and lower percentages of rigid wages (-2%).

[13]Note that in the UK in the second time-period there was a drop in the productivity growth rate from 2.5% to 1.8%.

4 Explanations

There are two important empirical results from the previous section that deserve an explanation: 1) differences of the spike at zero and the percentages of wage cuts for stayers across countries, and 2) the spike at zero for movers.

4.1 Stayers

The ranking of the European countries that emerges from our figures suggests an explanation of differences in wage changes across countries, taking into account the characteristics of wage bargaining and labour market institutions. We regress the percentage of wage cuts for full time stayers on country-variables such us: union coverage, coordination and employment protection legislation (epl). The results are shown in Tab. 4. The percentage of coverage and epl and coordination are taken from various sources: OECD publications, and Boeri - Brugiavini-Calmfors (2001). As we can see, both coverage and epl are significant. Coverage seems to be positively related to wage cuts, one possible explanation can be that the higher is the coverage the easier to adjust wages to negative shocks. Interestingly, the employment protection legislation variable shows a negative sign, suggesting that wages are more likely to be cut when it is harder to layoff workers.[14]

Tab. 4

variables	coeff	signif.
coverage	.553	(.001)
epl	-4.815	(.034)
coordination	-1.826	(.697)
$R^2 = 0.95$		

4.2 Movers

We tried to explain the striking spike observed at zero for movers looking at various variable. The most useful were: 1) the number of hours worked, 2) the reason why the employee changes job, and 3) satisfaction on the present job, for a number of reasons.

[14]The estimates of the paramenters can be improved using panel data thechniques in order to identify country-specific effects, in future versions of the paper in which more waves will be added.

In all the countries we found that a quite high percentage of movers who do not change their wage actually works a lower number of hours. Among those who remain, about 60% did not change job voluntarily, but were either fired or encouraged to move by their employer. Among the reasons for accepting an equally rewarding job, satisfaction for the location of the new job seems to play a clear role[15].

Some of the explanations found for the spike at zero, such as the reason for changing job, can be reconciled to the implications of micro-models of wage determination. But clearly the amenities seem to be an interesting variable to add to theoretical models.

5 Conclusions

In this paper we investigated wage dynamics at individual level using data from the ECHP survey. The particular feature of this new panel data set, the fact that the same questionnaire is asked in all the countries involved in the survey, allowed us to construct nominal wage changes distributions for stayers full-time and movers, comparing twelve European countries. Moreover, the fact that the ECHP is in many features similar to the PSID survey, allowed us to include in our comparisons also the US, where a number of similar works have been carried out using individual surveys. Although in all the countries considered we found a spike at zero nominal wage changes for different measure of wages, wage cuts are frequent in all the European countries. Therefore wages are not completely downwardly rigid. Moreover, a high percentage of no wage change is observed both for stayers and movers.

We found interesting differences across countries in the extent of the spike at zero and the percentages of wage cuts. These differences seem to reflect differences in institutional settings across the European countries, in particular coverage and employment protection legislation. Moving for reasons depending on the employer, a reduction of the number of hours worked, and amenities seem to explain instead the spike at zero observed for movers.

The wage dynamics observed are consistent with models that predict nominal and not real wage rigidity. But it is hard to accept the hypothesis that wages are downwardly rigid.

Although the approach so far has not taken into account reporting errors,

[15] Tables with results to be added...

I am working in this directions for future drafts of the paper[16]. Studies on administrative data on the same subject, to date not yet available for all the countries considered in this paper, are clearly an important benchmark. But usually administrative data lack the detailed information that we can find in individual surveys. Moreover, it is not easy to compare the results for different countries.

In conclusion, although the present work covers the analysis of nominal wage rigidity using individual surveys, further work is needed in order to try to understand the links between data of different quality in order to asses the extent of wage rigidity in the European countries.

[16]Hopefully for July it should be ready.

References

[1] Altonji, J. G. and Deveroux, P. J. (1999), 'Extent and consequences of Downward Nominal wage Rigidity', Working paper no. 7236, NBER .

[2] Akerloff, G. A., Dickens, W. T. and Perry, G. L. (1996), 'The macroeconomics of low inflation', *Brooking Papers on Economic Activity*, **1**, 1-76.

[3] Bound, J., Brown, C., Duncan, G. J. and Rodgers, W. (1989), 'Measurement error in cross-sectional and longitudinal labor market surveys: results from two validation studies', Working Paper no.2884, NBER .

[4] Card, D. and D. Hyslop (1997), Does inflation "grease the wheels of the labor market"?, *in* C.D. Romer and D.H. Romer, eds,'Reducing inflation: Motivation and strategy', number 356, University of Chicago Press, Chicago, IL and London, chapter 2, pp. 71-114.

[5] Duncan, G. J. and Hill, D. H. (1985), 'An investigation of the extent and consequences of measurement error in labor-economic survey data', *Journal of Labor Economics,* **3**(4), 508-532.

[6] Fehr, E. and Goette, L. (1999), 'Nominal wage rigidities in period of low inflation', mimeo, University of Zurich.

[7] Goux, D. (1997), 'Les salaries nominaux sont-ils rigides à la baisse?', mimeo, INSEE.

[8] Kahn, S. (1997), 'Evidence of nominal wage stickiness from microdata', *American Economic Review*, **87**(5), 993-1008.

[9] Malcomson, J.M. (1999), Individual employment contracts, *in* O. Ashenfelter and D. Card, eds, 'Handbook of Labor Economics', vol. III B, Elsevier Science, North Holland, Amsterdam, chapter , pp. .

[10] McLaughlin, K.J. (1994), 'Rigid wages?', *Journal of Monetary Economics*, **34**(3), 383-414.

[11] Nickell, S. and G. Quintini (2001), "Nominal wage rigidity and the rate of inflation", LSE-CEP Discussion Papers.

[12] Smith, J. (2000), 'Nominal wage rigidity in the United Kingdom', *The Economic Journal,* **110** (462), C176-C195.

6 Appendix 1: Current and hourly earnings

In this Appendix we compare the measure of wage used in Section 3 to the same measure, divided by the number of hours. As we can see from table 4, the results are completely different if we change the unit of measure. In particular, hourly wage changes are less frequent than changes in current earnings and the percentage of hourly wage cuts is higher than the percentage of total earnings cuts. This result seems to indicate a general increase in the number of hours reported from one year to the next. Anyway, since for people who do not change the number of hours the two measures obviously coincide, we can accept the results in Tab. 3 as a good measure for wage rigidity.

Tab. 4 CURRENT HOURLY Nominal Wage changes of Stayers working full-time and Movers, change number of hours worked

1994-1995			CURRENT EARNINGS				CURRENT HOURLY EARNINGS			
Countries	St. FT	Mov.	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts
Ger	2627	166	42.98	37.35	17.40	26.51	17.21	12.65	27.22	32.53
Bel	1555	78	36.66	29.49	16.14	17.95	16.21	6.41	31.06	25.64
Lux	593	35	32.38	31.43	15.18	2.86	22.09	17.14	18.89	28.57
Ita	3174	156	28.83	14.10	21.87	33.33	18.90	7.05	28.48	32.05
Port	2492	129	19.30	13.18	12.76	18.60	10.83	2.33	21.43	34.11
Den	1550	196	18.45	13.78	25.61	27.55	11.23	5.10	26.00	31.12
UK	1575	185	15.05	8.11	21.84	25.95	5.97	2.16	33.02	35.68
Neth	2204	200	14.02	8.50	19.65	28.50	8.12	3.50	27.40	33.00
Gre	1406	96	12.73	9.38	14.01	23.96	6.97	5.21	21.98	26.04
Fra	3403	144	10.40	10.42	33.47	34.72	5.58	1.39	37.11	40.28
Sp	2301	201	4.00	11.44	19.82	32.34	2.22	3.48	25.25	39.80
Ire	1325	152	2.42	2.63	23.32	23.03	0.91	1.32	27.55	25.66

1995-1996			CURRENT EARNINGS				CURRENT HOURLY EARNINGS			
Countries	St.	Mov.	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts	%St. RW	%Mov. RW	%SFT Cuts	%M Cuts
Bel	1565	71	30.73	26.76	21.02	25.35	13.42	2.82	32.97	38.03
Ita	3329	133	26.64	21.80	18.38	29.32	17.36	12.03	25.92	27.07
Ger	2580	182	26.28	17.03	25.93	28.02	13.45	6.59	30.97	35.71
Lux	609	26	21.84	11.54	19.54	26.92	16.58	-	23.32	30.77
Aust	1929	180	21.88	16.11	49.30	38.33	10.89	3.33	55.78	43.33
Den	1553	191	21.96	9.95	24.40	31.94	16.23	4.71	28.72	35.60
Neth	2218	151	16.82	11.92	22.14	31.79	10.28	5.30	28.85	36.42
Port	2486	141	12.43	10.64	9.94	29.08	7.80	4.26	16.13	30.50
Gre	1514	73	11.36	8.22	26.88	39.73	6.47	1.37	30.25	43.84
Fra	3461	110	9.39	6.36	32.42	40.91	5.72	1.82	36.72	31.82
UK	1669	208	5.39	5.29	21.63	31.73	1.86	-	27.80	29.33
Sp	2350	173	4.43	7.51	31.70	31.21	2.47	2.31	34.43	38.73
Ire	1373	143	2.40	2.10	28.84	26.57	0.87	0.70	33.94	27.97

7 Appendix 2: Stayers

In this Appendix, first, in tables 5-6, we give current and hourly wage changes for all non-job changers, without focussing, as in Section 3, on full-time workers. As we can see, the results are not much different. This comes directly, as we argued in Section 2, from the fact that stayers full-time represent the majority of the sample, therefore they basically drive the result.

Then, in tables 7-8, we compare stayers working part-time and full-time. As we can see, there is no clear pattern across the European countries. In some countries earnings of people working full time are more rigid than part times and in others the opposite is true.

Tab.5 CURRENT Nominal Wage changes of Stayers

	1994-1995			1995-1996		
Countries	Stayers	%Rigid	% Cuts	Stayers	% Rigid	% Cuts
Ger	2973	43.90	17.49	2907	26.45	26.66
Bel	1758	36.52	16.15	1748	30.55	21.17
Lux	653	31.09	15.31	666	22.07	19.97
Aust	-	-	-	2143	22.96	48.53
Ita	3603	29.53	22.26	3605	26.71	18.53
Port	2603	19.94	12.79	2576	13.00	9.90
Den	1701	18.93	26.22	1700	21.88	24.35
UK	1837	14.59	22.59	1927	5.55	22.16
Neth	2646	13.95	21.09	2664	16.82	22.97
Gre	1570	12.42	13.44	1575	11.56	27.30
Fra	3819	10.37	33.73	3729	9.36	32.61
Sp	2419	4.05	19.80	2448	4.62	31.66
Ire	1501	2.86	22.98	1489	2.82	29.01

Tab.6 CURRENT HOURLY Nominal Wage changes of Stayers

	1994-1995			1995-1996		
Countries	Stayers	%Rigid	% Cuts	Stayers	% Rigid	% Cuts
Ger	2973	18.37	27.75	2907	13.48	32.34
Bel	1758	15.87	31.63	1748	13.79	33.07
Lux	653	20.98	19.91	666	16.22	23.72
Aust	-	-	-	2143	11.15	55.25
Ita	3603	18.54	30.61	3605	17.20	26.07
Port	2603	10.95	22.36	2576	8.23	16.46
Den	1701	11.23	27.34	1700	15.94	29.29
UK	1837	5.99	33.91	1927	2.18	27.92
Neth	2646	8.39	28.38	2664	10.44	30.18
Gre	1570	6.50	25.10	1575	6.29	30.79
Fra	3819	5.39	37.73	3729	5.63	36.90
Sp	2419	2.19	25.75	2448	2.53	34.80
Ire	1501	1.40	28.65	1489	1.21	34.05

Tab. 7 CURRENT Nominal wage changes Stayers Full-time and Part-time, change number of hours

1994-1995	FULL TIME			PART TIME		
Countries	St. F	% Rigid	% Cuts	St.P	% Rigid	%Cuts
Ger	2627	42.98	17.40	271	49.08	19.19
Bel	1555	36.66	16.14	144	35.42	15.28
Lux	593	32.38	15.18	50	14.00	16.00
Ita	3174	28.83	21.87	95	33.68	17.89
Port	2492	19.30	12.76	62	37.10	12.90
Den	1550	18.45	25.61	118	24.58	32.20
UK	1575	15.05	21.84	225	12.44	27.11
Neth	2204	14.02	19.65	367	13.62	27.79
Gre	1406	12.73	14.01	23	13.04	13.04
Fra	3403	10.40	33.47	220	10.91	33.18
Sp	2301	4.00	19.82	63	3.17	15.87
Ire	1325	2.42	23.32	83	12.05	18.07

1995-1996	FULL TIME			PART TIME		
Countries	St. F	%Rigid	% Cuts	St.P	% Rigid	% Cuts
Bel	1565	30.73	21.02	151	31.79	22.52
Ita	3329	26.64	18.38	82	23.17	17.07
Ger	2580	26.28	25.93	268	30.22	35.45
Lux	609	21.84	19.54	47	21.28	23.40
Aust	1929	21.88	49.30	146	29.50	44.52
Den	1553	21.96	24.40	114	21.05	22.81
Neth	2218	16.82	22.14	379	17.68	27.18
Port	2486	12.43	9.94	62	41.94	8.06
Gre	1514	11.36	26.88	12	8.33	33.33
Fra	3461	9.39	32.42	189	10.05	32.28
UK	1669	5.39	21.63	223	7.17	21.52
Sp	2350	4.43	31.70	57	8.77	38.70
Ire	1373	2.40	28.84	76	10.53	31.58

Tab. 8 CURRENT HOURLY Nominal Wage changes of Stayers Full-time and Part-time, change number of hours worked

1994-1995	FULL TIME			PART TIME		
Countries	St. F	% Rigid	% Cuts	St. P	% Rigid	% Cuts
Ger	2627	17.21	27.22	271	33.58	28.04
Bel	1555	16.21	31.06	144	18.06	29.17
Lux	593	22.09	18.89	50	8.00	22.00
Ita	3174	18.90	28.48	95	22.11	29.47
Port	2492	10.83	21.43	62	20.97	33.87
Den	1550	11.23	26.00	118	13.56	37.29
UK	1575	5.97	33.02	225	6.67	40.00
Neth	2204	8.12	27.40	367	10.63	32.43
Gre	1406	6.97	21.98	23	4.35	39.13
Fra	3403	5.58	37.11	220	5.00	35.45
Sp	2301	2.22	25.25	63	1.59	22.22
Ire	1325	0.91	27.55	83	9.46	26.51

1995-1996	FULL TIME			PART TIME		
Countries	St. F	% Rigid	% Cuts	St. P	% Rigid	% Cuts
Bel	1565	13.42	32.97	151	20.53	30.46
Ita	3329	17.36	25.92	82	19.51	21.95
Ger	2580	13.45	30.97	268	16.42	41.42
Lux	609	16.58	23.32	47	14.89	23.40
Aust	1929	10.89	55.78	146	17.12	52.05
Den	1553	16.23	28.72	114	15.79	33.33
Neth	2218	10.28	28.85	379	12.66	33.51
Port	2486	7.80	16.13	62	29.03	16.13
Gre	1514	6.47	30.25	12	8.33	33.33
Fra	3461	5.72	36.72	189	6.35	34.92
UK	1669	1.86	27.80	223	4.93	26.91
Sp	2350	2.47	34.43	57	5.26	38.60
Ire	1373	0.87	33.94	76	7.89	36.84

8 Appendix 4: No change in the month of the interview

It might be argued that considering a change in current earnings as the base-measure for wage, the results presented in our paper can be biased by the month in which the interview was taken. In this appendix, we replicate all the tables that have been given in the paper for people whose interview was taken in no more than two months difference in the two years period considered. As we can see, a part for the countries in which the number of observations drops dramatically, the qualitative results do not change at all. The percentages change but only slightly.

Tab.# CURRENT Nominal Wage changes of Stayers

	1994-1995			1995-1996		
Countries	Stayers	%Rigid	% Cuts	Stayers	% Rigid	% Cuts
Ger	2973	43.90	17.49	2907	26.45	26.66
Bel	981	37.82	15.19	1348	30.42	19.96
Lux	37	45.95	8.11	500	20.00	18.20
Aust	-	-	-	1749	21.38	49.00
Ita	2965	29.17	22.60	3266	26.76	18.62
Port	1901	21.46	11.73	1297	13.96	11.26
Den	1115	18.92	25.74	1497	21.04	24.52
UK	1812	14.51	22.74	1890	5.61	22.12
Neth	1981	13.88	21.66	110	17.27	17.27
Gre	1560	12.37	13.33	495	14.55	31.11
Fra	3458	10.03	33.83	3708	9.33	32.66
Sp	2222	3.78	19.62	2421	4.67	31.68
Ire	1251	3.04	22.14	1288	2.95	29.11

Tab.# CURRENT HOURLY Nominal Wage changes of Stayers

	1994-1995			1995-1996		
Countries	Stayers	%Rigid	% Cuts	Stayers	% Rigid	% Cuts
Ger	2973	18.37	27.75	2907	13.48	32.34
Bel	981	16.82	29.97	1348	13.13	32.86
Lux	37	27.03	13.51	500	14.00	22.20
Aust	-	-	-	1749		
Ita	2965	18.58	30.76	3266	17.21	26.09
Port	1901	11.68	23.20	1297	8.87	16.58
Den	1115	11.21	27.80	1497	15.23	29.79
UK	1812	6.02	33.94	1890	2.17	27.72
Neth	1981	8.73	29.23	110	10.00	28.18
Gre	1560	6.54	25.00	495	7.68	33.33
Fra	3458	5.15	37.68	3708	5.66	36.87
Sp	2222	2.03	25.65	2421	2.56	34.90
Ire	1251	1.52	28.22	1288	1.40	34.08

Tab. # CURRENT Nominal Wage changes of Stayers Full-time.

1994-1995						
	change in month interview			no change in m. interview		
Countries	St. FT	%St. RW	%SFT Cuts	St. FT	%St. RW	%SFT Cuts
Ger	2627	42.98	17.40	1053	42.36	16.14
Bel	1555	36.66	16.14	874	37.87	15.22
Lux	593	32.38	15.18	32	50.00	6.25
Ita	3174	28.83	21.87	1265	28.37	22.33
Port	2492	19.30	12.76	1816	20.93	11.73
Den	1550	18.45	25.61	1007	18.47	25.32
UK	1575	15.05	21.84	1551	14.96	21.99
Neth	2204	14.02	19.65	1657	13.82	19.92
Gre	1406	12.73	14.01	1396	12.68	13.90
Fra	3403	10.40	33.47	3081	10.16	33.56
Sp	2301	4.00	19.82	2120	3.73	19.67
Ire	1325	2.42	23.32	1112	2.61	22.48

1995-1996						
	change in month interview			no change in m. interview		
Countries	St. FT	%St. RW	%SFT Cuts	St. FT	%St. RW	%SFT Cuts
Bel	1565	30.73	21.02	1208	30.55	20.03
Ita	3329	26.64	18.38	3019	26.70	18.52
Ger	2580	26.28	25.93	2580	26.28	25.93
Lux	609	21.84	19.54	454	18.94	18.50
Aust	1929	21.88	49.30	1572	20.48	49.62
Den	1553	21.96	24.40	1370	21.02	24.82
Neth	2218	16.82	22.14	94	17.02	19.15
Port	2486	12.43	9.94	1247	13.63	11.39
Gre	1514	11.36	26.88	472	13.98	30.51
Fra	3461	9.39	32.42	3442	9.36	32.48
UK	1669	5.39	21.63	1637	5.44	21.50
Sp	2350	4.43	31.70	2324	4.48	31.71
Ire	1373	2.40	28.84	1184	2.45	28.89

Tab.# CURRENT Nominal Wages of Stayers Full time who do not change the number of hours worked.

1994-1995						
	change in month interview			no change in m. interview		
Countries	St. FT	%St. RW	%SFT Cuts	St. FT	%St. RW	%SFT Cuts
Ger	1053	42.36	16.14	1053	42.36	16.14
Bel	674	37.09	16.62	380	38.42	16.58
Ita	1943	30.42	19.56	1601	30.17	19.68
Lux	450	28.89	15.33	23	43.48	8.70
Port	1400	18.93	11.29	1007	20.85	10.53
Den	981	17.64	23.34	646	17.96	23.37
UK	594	15.49	22.90	586	15.53	23.04
Gre	602	14.62	15.28	599	14.69	15.19
Neth	1275	13.96	18.27	979	13.89	19.31
Fra	1813	10.42	32.27	1632	9.99	32.54
Spa	1086	4.60	19.24	1000	4.20	19.30
Ire	541	2.03	22.55	465	2.37	21.94

1995-1996						
	change in month interview			no change in m. interview		
Countries	St. FT	%St. RW	%SFT Cuts	St. FT	%St. RW	%SFT Cuts
Bel	668	31.14	20.51	504	30.16	20.04
Ger	1197	28.57	22.72	1197	28.57	22.72
Ita	2017	27.96	16.16	1822	28.21	16.14
Den	1093	23.06	22.96	1370	21.02	24.82
Aust	933	21.97	49.30	743	19.52	50.20
Lux	501	19.96	19.96	369	16.80	18.97
Neth	1301	17.29	21.75	51	15.69	19.61
Port	1554	12.48	8.24	747	14.32	8.97
Gre	800	11.75	25.00	250	14.40	29.20
Fra	1944	10.03	33.44	1936	10.07	33.37
Spa	1105	4.89	29.77	1094	4.94	29.80
UK	676	4.59	18.34	660	4.55	17.88
Ire	639	1.88	27.54	556	2.16	27.70

Tab. # CURRENT HOURLY Nominal Earnings changes of Stayers, change number of hours worked

1994-1995						
	change in month interview			no change in m. interview		
Countries	St. FT	%St. RW	%SFT Cuts	St. FT	%St. RW	%SFT Cuts
Ger	2627	17.21	27.22	2627	17.21	27.22
Bel	1555	16.21	31.06	874	16.82	29.75
Lux	593	22.09	18.89	32	31.25	9.38
Ita	3174	18.90	28.48	2615	18.78	28.45
Port	2492	10.83	21.43	1816	11.73	22.25
Den	1550	11.23	26.00	1007	11.52	26.02
UK	1575	5.97	33.02	1551	6.00	33.08
Neth	2204	8.12	27.40	1657	8.27	27.82
Gre	1406	6.97	21.98	1396	7.02	21.85
Fra	3403	5.58	37.11	3081	5.32	37.13
Sp	2301	2.22	25.25	2120	2.03	25.14
Ire	1325	0.91	27.55	1112	0.99	26.98

1995-1996						
	change in month interview			no change in m. interview		
Countries	St.	%St. RW	%SFT Cuts	St. FT	%St. RW	%SFT Cuts
Bel	1565	13.42	32.97	1208	12.67	32.78
Ita	3329	17.36	25.92	3019	17.46	25.84
Ger	2580	13.45	30.97	2580	13.45	30.97
Lux	609	16.58	23.32	454	13.88	22.03
Aust	1929	10.89	55.78	1572	9.54	56.36
Den	1553	16.23	28.72	1370	15.40	29.34
Neth	2218	10.28	28.85	94	8.51	30.85
Port	2486	7.80	16.13	1247	8.58	16.12
Gre	1514	6.47	30.25	472	8.05	33.05
Fra	3461	5.72	36.72	3442	5.75	36.69
UK	1669	1.86	27.80	1637	1.83	27.49
Sp	2350	2.47	34.43	2324	2.50	34.51
Ire	1373	0.87	33.94	1184	1.01	33.87

Composition of STAYERS(change month of the interview)

	1994-95				1995-96			
Countries	FF	PP	FP	PF	FF	PP	FP	PF
UK	85.74	12.25	0.93	1.09	86.61	11.57	0.93	0.88
Bel	88.45	8.19	1.37	1.99	89.53	8.64	1.03	0.80
Den	91.12	6.94	0.82	1.12	91.35	6.71	0.76	1.18
Fra	89.11	5.76	1.31	3.82	92.81	5.07	1.05	1.07
Germ	88.36	9.12	1.11	1.41	88.75	9.22	0.86	1.17
Gre	89.55	1.46	0.76	8.22	96.13	0.76	1.71	1.40
Ire	88.27	5.53	1.00	5.20	92.21	5.10	1.68	1.01
Ita	88.09	2.64	0.44	8.83	92.34	2.27	4.49	0.89
Lux	90.81	7.66	0.46	1.07	91.44	7.06	0.75	0.75
Neth	83.30	13.87	1.17	1.66	83.26	14.23	1.28	1.24
Port	95.74	2.38	0.77	1.11	96.51	2.41	0.35	0.74
Sp	95.12	2.60	0.79	1.49	96.00	2.33	0.74	0.94
Aust	-	-	-	-	90.01	6.81	1.77	1.40

FF= Full-time in both years; PP= Part time in both years; FP= changing contract from full-time to part-time;PF=changing contract from part-time to full-time.

STAYERS(no change month of the interview)

	1994-95				1995-96			
Countries	FF	PP	FP	PF	FF	PP	FP	PF
UK	85.60	12.36	0.94	1.10	86.61	11.64	0.90	0.85
Bel	89.90	8.66	0.82	1.43	89.61	8.68	0.82	0.89
Den	90.31	7.53	0.54	1.61	91.52	6.55	0.73	1.20
Fra	89.10	5.73	1.24	3.93	92.32	4.95	1.65	1.07
Germ	88.36	9.12	1.11	1.41	88.75	9.22	0.86	1.17
Gre	89.49	1.47	0.77	8.27	95.35	0.40	3.03	1.21
Ire	88.89	5.20	0.88	5.04	91.93	5.28	1.79	1.01
Ita	88.20	2.26	0.40	9.14	92.44	2.14	4.53	0.89
Lux	86.49	10.81	-	2.70	90.80	7.40	0.80	1.00
Neth	83.64	13.48	1.06	1.82	85.45	12.73	-	1.82
Port	95.53	2.79	0.63	1.05	96.14	2.31	0.46	1.08
Sp	95.41	2.61	0.68	1.31	95.99	2.31	0.74	0.95
Aust	-	-	-	-	89.88	6.86	1.72	1.54

YEARLY NOMINAL WAGE CHANGES

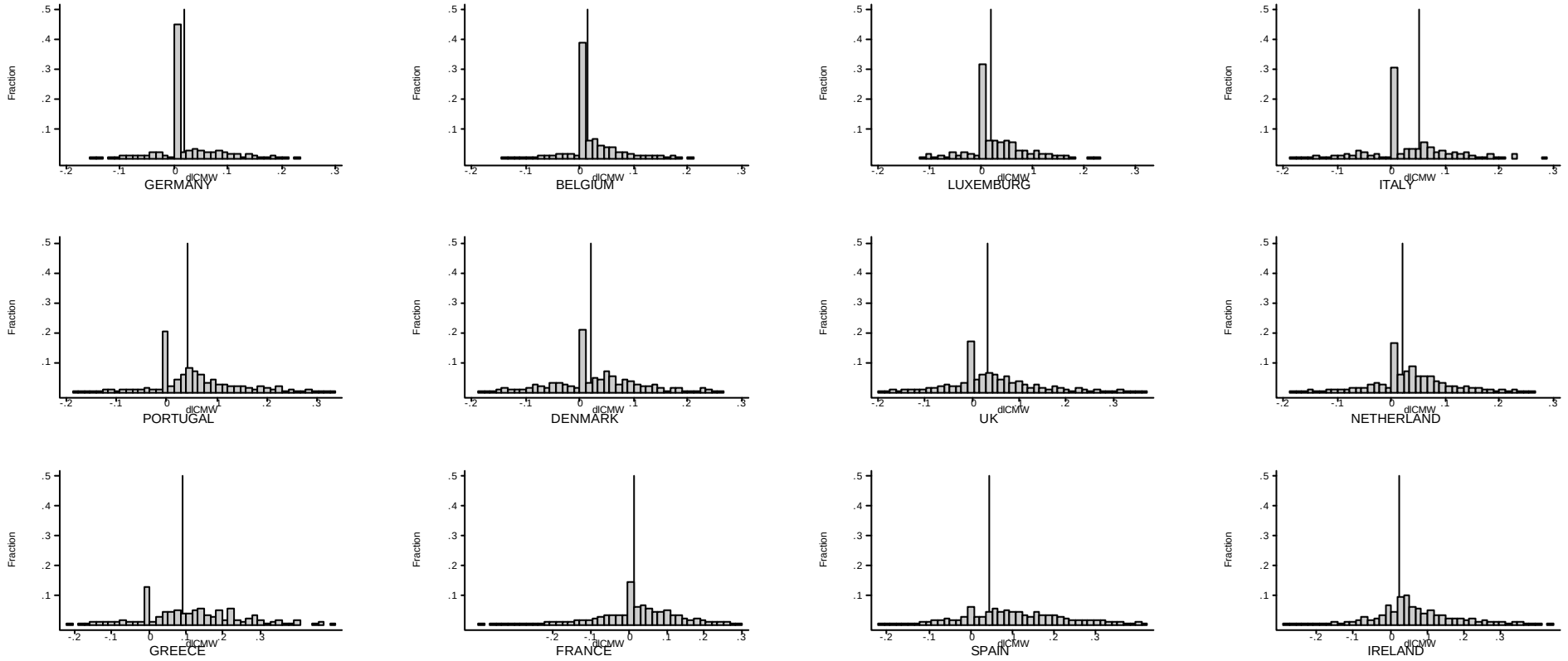

FIG.1a: Stayers Full-time 1994-95

YEARLY NOMINAL WAGE CHANGES

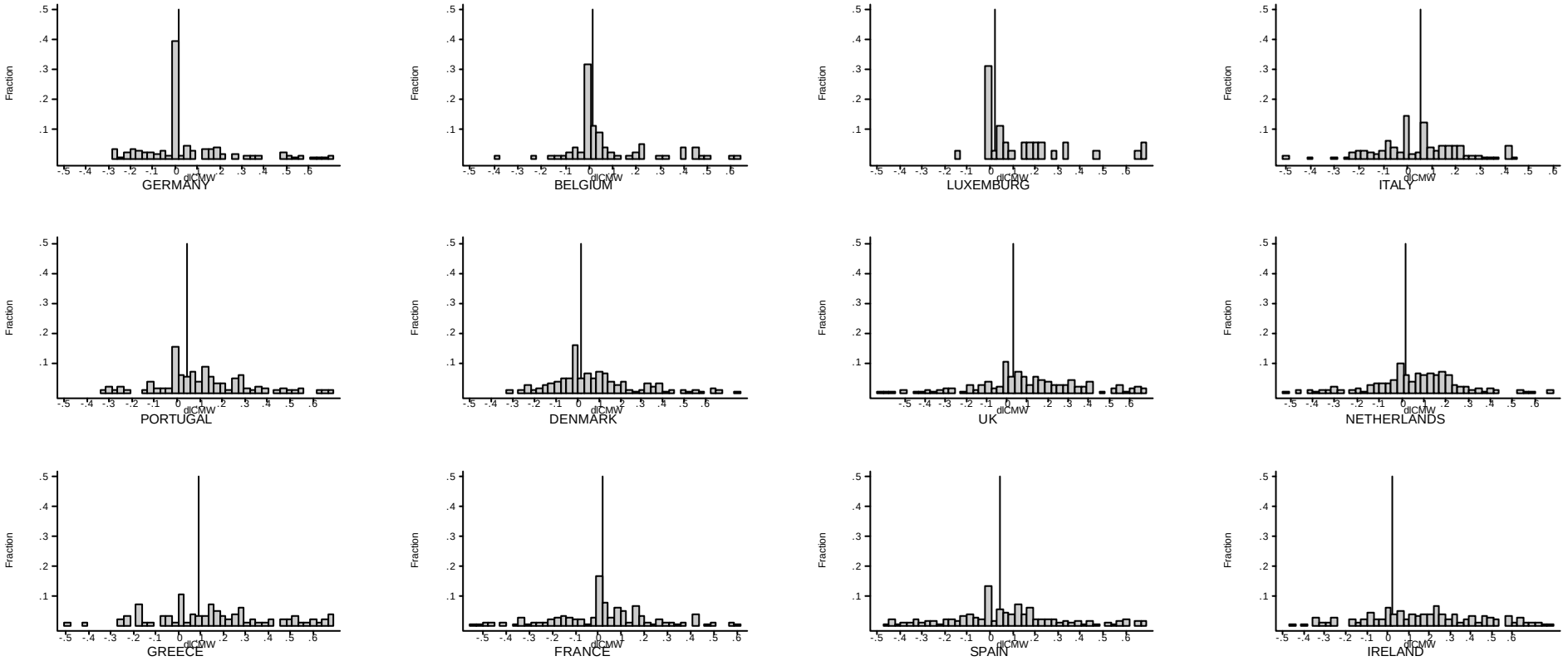

FIG.1b: Movers 1994-95

YEARLY NOMINAL WAGE CHANGES

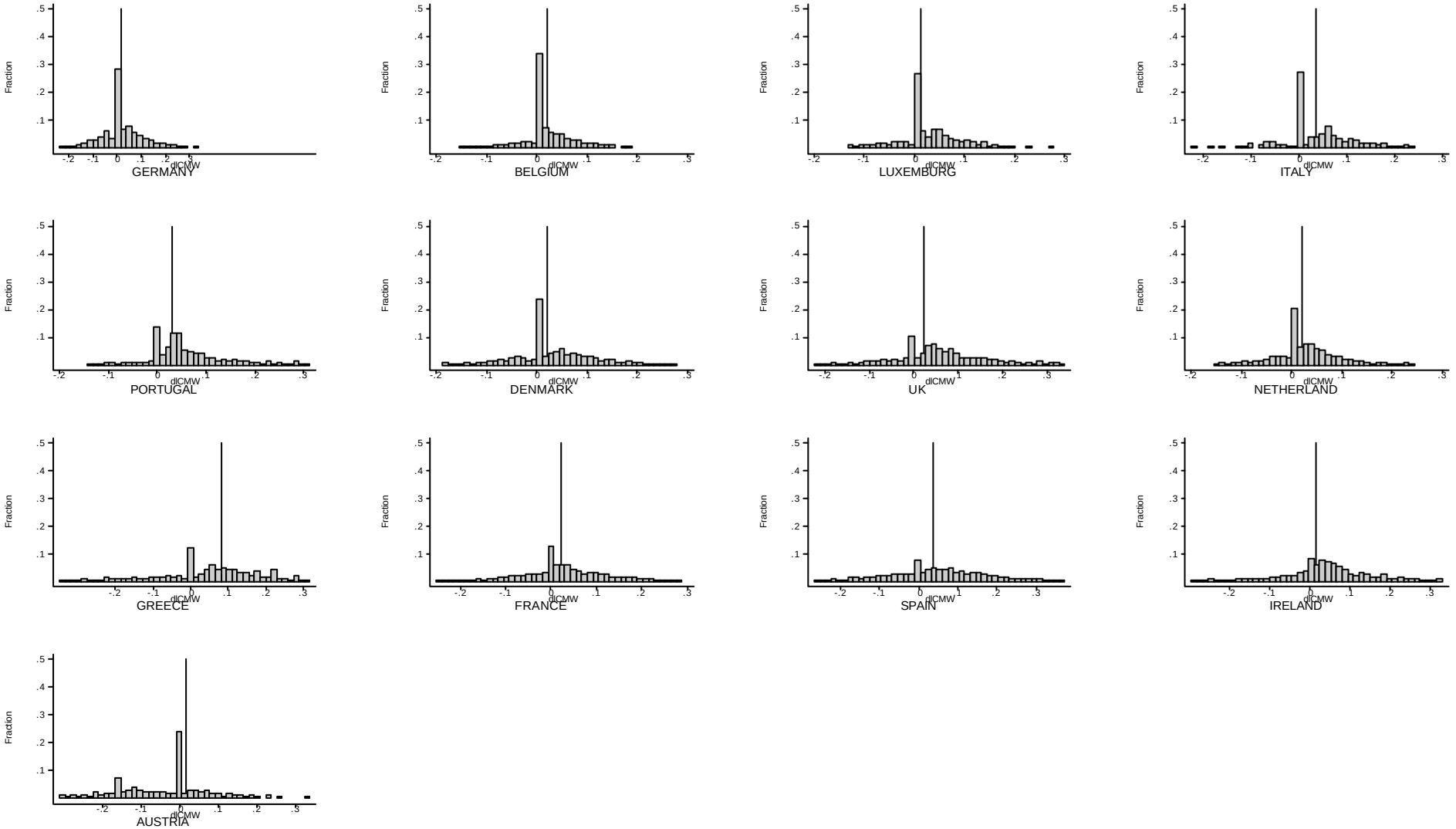

FIG.2a: Stayers Full-time 1995-96

YEARLY NOMINAL WAGE CHANGES

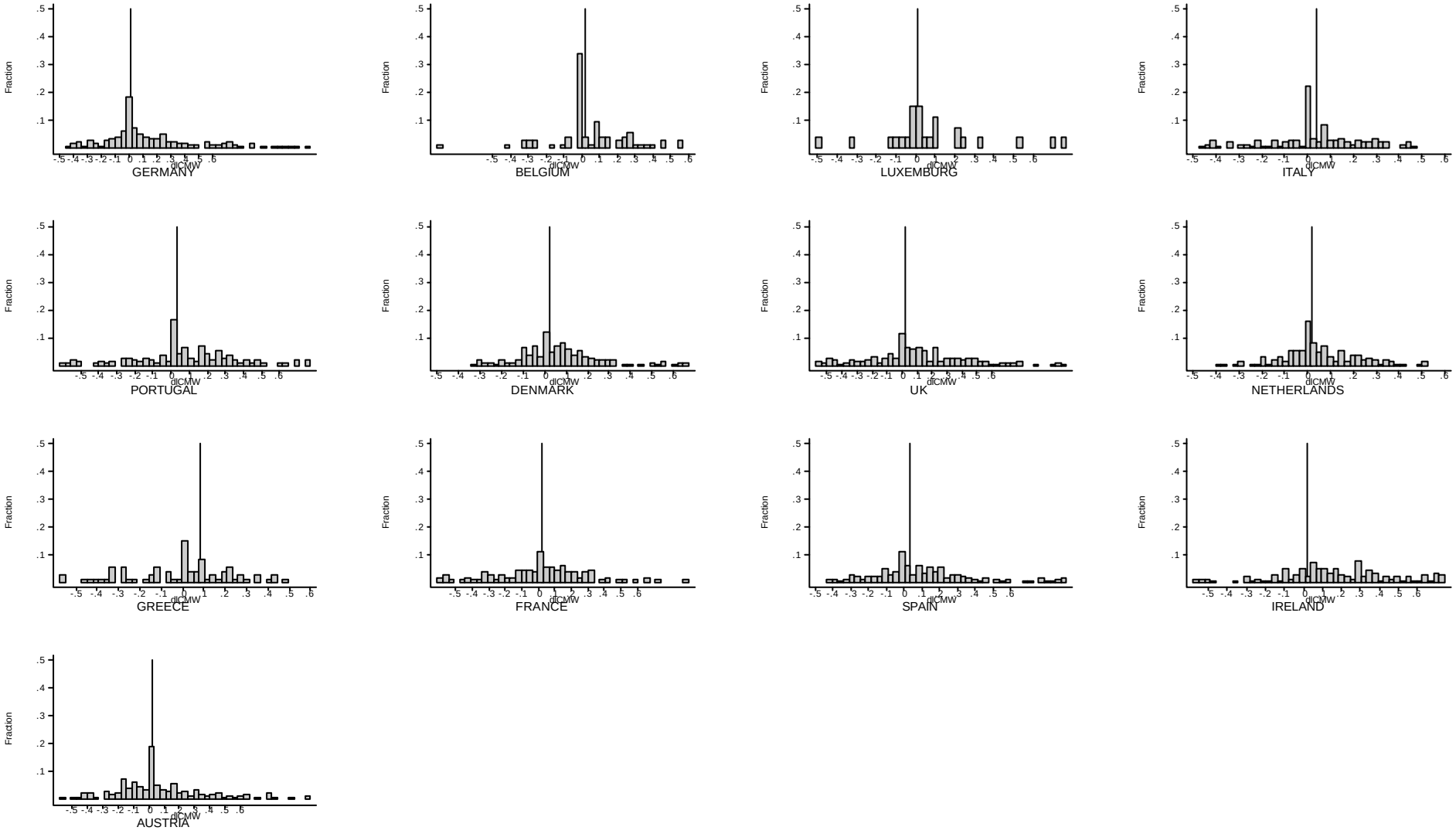

FIG.2b: Movers 1995-96